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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

I.2
9/22/99

SEP 22 1999

REPLY TO THE ATTENTION OF:

SE-5J

MEMORANDUM

DATE:

SUBJECT: ACTION MEMORANDUM AMENDMENT - DETERMINATION THAT
SPECIFIC INSTITUTIONAL CONTROLS ARE ADEQUATE TO ABATE
THE THREAT TO PUBLIC HEALTH AND THE ENVIRONMENT FROM
THE THORIUM UNDER THE RIGHTS-OF-WAY ADJACENT TO THE
LINDSAY LIGHT II SITE CHICAGO, COOK COUNTY, ILLINOIS
(SITE SPILL ID #YT)

FROM: Verneta J. Simon, On-Scene Coordinator
Fredrick A. Micke, On-Scene Coordinator *Fredrick A. Micke*
Emergency Response Branch - Section III

TO: William E. Muno, Director
Superfund Division

THRU: Richard Karl, Chief
Emergency Response Branch

I. PURPOSE

The purpose of this Action Memorandum Amendment is to document the determination that specific institutional controls are adequate to protect human health and the environment with respect to thorium present under the public rights-of-way adjacent to the Lindsay Light II Site. In an Action Memorandum dated April 22, 1996, which determinations are fully incorporated into this Action Memorandum Amendment by reference, U.S. EPA documented its determination that an imminent and substantial threat to human health and the environment existed at the Lindsay Light II Site due to the presence of thorium and also proposed necessary actions to abate that threat. The April 1996 Action Memorandum proposed a necessary removal action in section V., paragraph 6 to:

"[c]onduct off-site surveying and sampling as necessary and, at a minimum, implement 40 C.F.R. 192, if deemed necessary, should contamination be discovered beyond the site boundaries."

Current Site Conditions

Pursuant to the June 1996 UAO, the Respondents conducted extensive removal activities at the Site including the investigation and removal of on-site thorium and the surveying of off-site thorium under portions of the public rights-of-ways-adjacent to the Site. The Site is no longer a paved public parking lot as described in the June 1996 Action Memorandum. The Site owner is developing the property for residential and commercial uses, including condominiums, theaters, hotels, and underground parking. The removal investigation and removal activities detected thorium under the rights-of-way beneath Illinois Street, Columbus Drive, and Grand Avenue in the concentrations and in the locations shown in Attachment A to this Amended Action Memorandum. The asphalt, concrete, and soils presently covering the thorium contamination effectively prevent the release of radiation from the materials into the environment, however, if those materials are exposed then the materials may pose a threat to human health and the environment.

The City of Chicago's Department of Environment, the Illinois Environmental Protection Agency, and the Illinois Department of Nuclear Safety (IDNS) are aware of site conditions, the removal actions and plans described in the Amended Action Memorandum.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The conditions at the Lindsay Light II site present an imminent and substantial endangerment to public health or welfare or the environment based upon factors set forth in the National Contingency Plan (NCP), Section 300.415(b)(2), specifically:

- a) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

This factor is present at the site due to the existence of Thorium Residuals under the adjacent rights-of-way found to have radioactive contamination as high as 600 picocuries per gram. This reading is nearly 300 times the background level measured for this site. Although presently shielded by asphalt, concrete, or soil the Thorium Residuals are located in the path of water, gas, sewer, electric and other utilities and radiation may be encountered by any person who excavates the shielding asphalt, concrete or soils or operates under the rights-of-way to conduct underground utility replacement or maintenance activities.

- b) High levels of hazardous substances, pollutants or contaminants in soils largely at or near the surface, that may migrate;

As was noted in a) above, the Thorium Residuals are located under the right-of-way and in the path of various utilities. If the concrete, asphalt, or soils are excavated or if any person operates under the rights-of-way and disturbs the contaminants, the Thorium Residuals will contaminate the intruder and his or her equipment, and lead to dispersal of the thorium contaminants from its present locations.

U.S. EPA has evaluated the risk posed by the residual contamination and determined it does not pose a threat to human health and the environment as long as it is shielded by asphalt or concrete and left undisturbed. If exposed or disturbed, however, it must be properly managed to avoid any release to the environment or threat to human health.

IV. ENDANGERMENT DETERMINATION

Given the site conditions, the nature of the hazardous substances on the site, and the potential exposure pathways to nearby populations described in Sections II and III above, actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to human health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

To eliminate the need to implement 40 C.F.R. 192, which at this Site resulted in a cleanup criterion of 5 picocuries over background radiation for each 15 centimeter layer of soil, U.S. EPA requires assurance as the streets and underground utilities are installed, maintained or replaced, whether on a routine or emergency basis, that radiation surveillance will be conducted before and during excavation, that workers will be protected, and that all residual contamination will be managed and disposed of in accordance with state and federal requirements. Given the long-lived nature of thorium contamination (i.e. a half-life of 14 billion years) it is critical to the protection of human health and the environment, that these assurances will remain effective until the thorium contamination is removed. The OSCs propose to undertake the following actions to mitigate threats posed by the presence of Thorium Residuals under the rights-of-way adjacent to and surrounding the Site:

The City of Chicago, Kerr-McGee Chemical L.L.C., and River East L.L.C. enter into a binding Right-of-Way Agreement that runs with the land and that contains the following provisions:

- 1) the City will restrict routine and emergency access to the residual contamination; and
- 2) the City will notify all utilities and affected City departments of the presence of the contamination in the rights-of-way; and
- 3) the City will provide written notice to U.S. EPA whenever any permit to work in a right-of-way has been requested; and
- 4) the City will establish and maintain a database that will notify 1) any party seeking to install, repair or replace underground utilities or conduct street repairs that involve the removal of the surface materials; and 2) any party that otherwise seeks access to the soils beneath the rights-of-way, that it is required to conduct radiation surveillance, comply with an approved health and safety plan, and properly manage any exposed or disturbed Thorium Residuals, in accordance with state and federal requirements; and
- 5) the City Supervisor of Maps and Plats, shall indicate on the official City plat (Book __Page __) a notice that thorium contamination is present in the rights-of-way and that the rights-of-way must not be disturbed prior to consultation with the Chicago Department of Transportation and the Chicago Board of Underground or their successor agencies and notice to U.S. EPA or its successor agency in accordance with the Right-of-Way Agreement Numbered _____;" and/or

the Right-of-Way Agreement shall be recorded with the Cook County Recorder of Deeds and shall run with the land of the rights-of-way; and
- 6) River East and Kerr McGee will place and maintain placards in any underground access in the rights-of-way that state "Before Work, Contact Chicago Department of Transportation."

This post-removal site control is recommended at this site, consistent with the provisions of Section 300.415(k) of the NCP. The solution should incur no operation and maintenance costs.

The response actions described in this memorandum directly address actual and threatened releases of hazardous substances, pollutants or contaminants at the facility which may pose an imminent and substantial endangerment to human health and safety and to the environment. These response actions do not impose a burden on affected property disproportionate to the extent to

which that property contributes to the conditions being addressed.

Applicable or Relevant and Appropriate Requirements (ARARS)

All applicable or relevant and appropriate requirements (ARARS) of Federal and State law will be complied with to the extent practicable.

The primary federal ARAR for soil cleanup criteria is Title 40, Part 192 of the Code of Federal Regulations, "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings." Ancillary ARARS include the NRC's Title 10, Part 20, of the Code of Federal Regulations, "Standards for Protection Against Radiation," NRC Regulatory Guide 1.86, "Termination of Operating License for Nuclear Reactors," and the Department of Transportation's Title 49 for shipping hazardous materials. Also, many of the regulations carried out by NRC have been delegated to IDNS.

The IDNS has determined that the thorium is Section 11(e)(2) material, 42 U.S.C. 2014(e)(2) from the thorium processing carried out by Lindsay Light and Chemical Corporation.

In accordance with the revised NCP, Section 300.825(a)(1), a list of State ARARS will added to the administrative record.

The actions proposed for this site will attempt to mitigate an adverse effect to the environment that has already occurred.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN.

Delayed action increases the potential for disturbance or exposure of the thorium contamination, the improper management of the contaminated material, and exposure to utility and road workers.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this site is contained in an Enforcement Confidential addendum.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Lindsay Light Site underground Thorium Residuals contamination present in the rights-of-way adjacent to the Lindsay Light II Site in Chicago, Illinois. This removal action was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the site. Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal and we recommend your approval of the proposed removal action.

APPROVED: _____

Wm. E. Myers
Director, Superfund Division

DATE: _____

9/22/99

DISAPPROVED: _____

Director, Superfund Division

DATE: _____

Confidential Enforcement Addendum

Attachment 1: April 22, 1996 Action Memorandum

Attachment 2: Rights of Way and Location of Thorium Residuals

Attachment 3: Index to Administrative Record

cc: Kevin Mould, U.S. EPA, OERR, 5202-G

Michael Chezik, U.S. Department of Interior

Tom Skinner, Director, Illinois Environmental

Protection Agency

Steve Davis, Illinois Department of Natural

Resources

Thomas W. Ortciger, Director, Illinois Department of Nuclear
Safety

bcc: R. Karl, SE-5J
B. Messenger, ESS, SE-5J
T. Lesser, P-19J, w/o enforcement
addendum
EERB Read File (C. Beck)
ERB Site File (SF Central File Room)
V. Simon, SE-5J
F. Micke, SE-5J
L. Jensen, SE-5J
M. Fulghum, C-14J
J. DeLeon, C-14J
L. Nachowicz, SE-5J
L. Fabinski, ATSDR, ATSDR-4J, w/o
enforcement addendum

**ENFORCEMENT ADDENDUM
LINDSAY LIGHT II SITE
CHICAGO, COOK COUNTY, ILLINOIS
APRIL 1994**

ENFORCEMENT CONFIDENTIAL

The Chicago Dock and Canal Trust ("CDCT") has owned the Site property since the mid-1800s. From 1915 until approximately 1932, CDCT leased the property to the now defunct Lindsay Light Co., Inc. for their operations, which historically imported thorium nitrate from Germany prior to World War I for use in the manufacture of incandescent mantles. When the war eliminated Lindsay Light's source of thorium, the company imported ores which included monazite sand from India, and bastnasite, and began processes to extract thorium, rare earth chemicals, and titanium material. The Lindsay Light Co. was the largest refiner of thorium and rare earth chemicals in the United States, was worth about \$1.3 million dollars in 1918, and furnished thorium and rare earth products to the Government in the development of the atomic bomb during World War II. The Lindsay Light Co. had several other locations in Chicago before moving to West Chicago, Illinois in the mid-1930s. Operations in West Chicago resulted in four U.S. EPA National Priorities List (NPL) sites. The Lindsay Light Co. building at 316 East Illinois was demolished in approximately 1934, and the property turned into a paved parking lot in approximately 1950. The Lindsay Light Co. merged into American Potash & Chemical Corp. in 1958, and American Potash & Chemical Corp. changed its name to Kerr-McGee Chemical Corp. in 1974.

During the spring/summer of 1993, CDCT came forward and expressed an interest in turning the parking lot into developed property. CDCT was voluntarily cooperative with U.S. EPA in discussing the necessary actions prior to any development of the property. Several meetings were held between CDCT, the removal enforcement team, and Larry Jensen of U.S. EPA Air and Radiation Division. While the levels of radiation above the asphalt parking lot are not currently at removal action levels, it is possible that future development of the property by pulling off the asphalt and excavating the soils underneath for building could release gamma rays to the public and to the environment.

Before deciding to build, CDCT agreed to sign an Administrative Order on Consent ("AOC") with U.S. EPA to study the extent of subsurface radiation and radionuclide content before excavation. The AOC was signed by U.S. EPA on January 27, 1994. A General Notice of Potential Liability was not issued due to the fact that the PRP came forward voluntarily and expressed a desire to comply with U.S. EPA under an AOC.

Kerr-McGee Chemical Corporation was sent a 104(e) information request letter on December 3, 1993. While Kerr-McGee is participating in the cleanup of the sites in West Chicago, and has also been contacted by CDCT for participation in the extent of contamination study at this Site, it is unclear at this time whether or not Kerr-McGee can be considered liable at this Site as a successor company.

Once the extent of contamination study is completed, CDCT is expected to make a decision about development of the property. If the decision is favorable, U.S. EPA will then proceed with negotiations for a second AOC. If negotiations should fail and development continue, U.S. EPA will issue a General Notice and a Unilateral Administrative Order.

ENFORCEMENT CONFIDENTIAL ADDENDUM
LINDSAY LIGHT II SITE/CHICAGO, COOK COUNTY, ILLINOIS
SEPTEMBER 1995

ENFORCEMENT CONFIDENTIAL

The Chicago Dock and Canal Trust ("CDCT") has owned the Site property since the mid-1800s. From 1915 until approximately 1932, CDCT leased the property to the now defunct Lindsay Light Co., Inc. ("Lindsay") for their operations, which historically imported thorium nitrate from Germany prior to World War I for use in the manufacture of incandescent mantles. When the war eliminated Lindsay's source of thorium, the company imported ores which included monazite sand from India, and bastnasite, and began processes to extract thorium, rare earth chemicals, and titanium material. Lindsay was the largest refiner of thorium and rare earth chemicals in the United States, was worth about \$1.3 million dollars in 1918, and furnished thorium and rare earth products to the Government in the development of the atomic bomb during World War II. Lindsay was also one of only two companies in the U.S. that provided raw thorium to the Radium Dial Company for their use in the manufacture of radioluminous dials for watches. The Radium Dial Company located in Ottawa, Illinois produced a Superfund National Priorities List ("NPL") Site consisting of fourteen separate areas which also includes emergency removal activities. In addition, Lindsay had several other locations in Chicago before moving to West Chicago, Illinois in the mid-1930s. Operations in West Chicago resulted in four NPL sites.

The Lindsay building at 316 East Illinois was demolished in approximately 1934, and the property turned into a paved parking lot in approximately 1950. Lindsay merged into American Potash & Chemical Corp. in 1958, and American Potash & Chemical Corp. changed its name to Kerr-McGee Chemical Corp. in 1974.

During the spring/summer of 1993, CDCT came forward and expressed an interest in turning the parking lot into developed property. CDCT was voluntarily cooperative with U.S. EPA in discussing the necessary actions prior to any development of the property. Several meetings were held between CDCT, the removal enforcement team, and Larry Jensen of U.S. EPA Air and Radiation Division. While the levels of radiation above the asphalt parking lot were not at removal action levels, it was possible that future development of the property by pulling off the asphalt and excavating the soils underneath for building could release gamma rays to the public and to the environment.

Before deciding to build, CDCT entered into an Administrative Order on Consent ("AOC") with U.S. EPA to study the extent of subsurface radiation and radionuclide content before excavation. The AOC was signed by U.S. EPA on January 27, 1994. A General

Notice of Potential Liability was not issued due to the fact that the PRP came forward voluntarily and expressed a desire to comply with U.S. EPA under the AOC.

Kerr-McGee Chemical Corporation was sent a 104(e) information request letter on December 3, 1993. While Kerr-McGee is participating in the cleanup of the sites in West Chicago, and was contacted by CDCT for participation in the extent of contamination study at this Site, it was unclear at the time the AOC was negotiated whether Kerr-McGee was a PRP at the Site. Because CDCT was voluntarily doing the study, U.S. EPA did not pursue Kerr-McGee as a PRP.

The extent of contamination study was completed in May 1994; however, CDCT has not yet completed their final report. A PRP meeting was held between U.S. EPA, CDCT, and Kerr-McGee on September 8, 1995. CDCT and Kerr-McGee have come forward and expressed an interest in a second AOC to remediate the Site. After the meeting, U.S. EPA informed Kerr-McGee about other buildings in Chicago contaminated by Lindsay operations at 161 East Grand (Lindsay Light I), and at 22 West Hubbard (Lindsay Light III). Since contamination at both locations is limited to inside the respective buildings, they do not meet removal action criteria, and U.S. EPA cannot order them to clean these properties up. Kerr-McGee is interested in remediating the other buildings while they are working on the Lindsay Light II Site.

If PRP negotiations should fail and development continue, U.S. EPA will issue a General Notice letter to both CDCT and Kerr-McGee, and then issue a Unilateral Administrative Order.

In addition, U.S. EPA intends to explore a lead associated with a U.S. EPA civil investigator interview of a West Chicago resident. The resident stated she had heard an ex-City attorney state that contamination originating from Lindsay was in fill used around the Art Institute and in Grant Park in Chicago. A 104(e) information request letter will be sent to the ex-City attorney for verification.

ENFORCEMENT CONFIDENTIAL ADDENDUM
LINDSAY LIGHT II SITE/CHICAGO, COOK COUNTY, ILLINOIS
APRIL 1996

ENFORCEMENT CONFIDENTIAL

The Chicago Dock and Canal Trust ("CDCT") has owned the Site property since the mid-1800s. From 1915 until approximately 1932, CDCT leased the property to the now defunct Lindsay Light Co., Inc. ("Lindsay") for their operations, which historically imported thorium nitrate from Germany prior to World War I for use in the manufacture of incandescent mantles. When the war eliminated Lindsay's source of thorium, the company imported ores which included monazite sand from India, and bastnasite, and began processes to extract thorium, rare earth chemicals, and titanium material. Lindsay was the largest refiner of thorium and rare earth chemicals in the United States, was worth about \$1.3 million dollars in 1918, and furnished thorium and rare earth products to the Government in the development of the atomic bomb during World War II. Lindsay was also one of only two companies in the U.S. that provided raw thorium to the Radium Dial Company for their use in the manufacture of radioluminous dials for watches. The Radium Dial Company located in Ottawa, Illinois produced a Superfund National Priorities List ("NPL") Site consisting of fourteen separate areas which also includes emergency removal activities. In addition, Lindsay had several other locations in Chicago before moving to West Chicago, Illinois in the mid-1930s. Operations in West Chicago resulted in four NPL sites.

The Lindsay building at 316 East Illinois was demolished in approximately 1934, and the property turned into a paved parking lot in approximately 1950. Lindsay merged into American Potash & Chemical Corp. in 1958, and American Potash & Chemical Corp. changed its name to Kerr-McGee Chemical Corp. in 1974.

During the spring/summer of 1993, CDCT came forward and expressed an interest in turning the parking lot into developed property. CDCT was voluntarily cooperative with U.S. EPA in discussing the necessary actions prior to any development of the property. Several meetings were held between CDCT, the removal enforcement team, and Larry Jensen of U.S. EPA Air and Radiation Division. While the levels of radiation above the asphalt parking lot were not at removal action levels, it was possible that future development of the property by pulling off the asphalt and excavating the soils underneath for building could release gamma rays to the public and to the environment.

Before deciding to build, CDCT entered into an Administrative Order on Consent ("AOC") with U.S. EPA to study the extent of subsurface radiation and radionuclide content before excavation. The AOC was signed by U.S. EPA on January 27, 1994. The extent of contamination study was completed in May 1994, and was

approved on March 13, 1996.

Kerr-McGee Chemical Corporation was sent a 104(e) information request letter on December 3, 1993. While Kerr-McGee is participating in the cleanup of the sites in West Chicago, and was contacted by CDCT for participation in the extent of contamination study at this Site, it was originally unclear whether Kerr-McGee was a Potentially Responsible Party (PRP) at the Site. Because CDCT was voluntarily doing the study, U.S. EPA did not pursue Kerr-McGee as a PRP.

CDCT is a PRP at the Site as the site owner/operator. Kerr-McGee is a PRP at the site as a result of its successor liability status from its relationship to Lindsay. Lindsay is responsible for generating the source of contamination at the Site. A PRP meeting was then held between U.S. EPA, CDCT, and Kerr-McGee on September 8, 1995. CDCT and Kerr-McGee came forward and expressed an interest in an AOC to remediate the Site.

U.S. EPA has informed Kerr-McGee about other buildings in Chicago contaminated by Lindsay operations at 161 East Grand (Lindsay Light I), and at 22 West Hubbard (Lindsay Light III). U.S. EPA's intent is to negotiate with Kerr-McGee for the remediation of those other sites as well.

Since the September 1995 PRP meeting, the PRPs have informed U.S. EPA that they would prefer to comply under a Unilateral Administrative Order ("UAO"). U.S. EPA will first issue a General Notice letter to both CDCT, and also to Kerr-McGee as the liable successor to the original Lindsay Light Company, before issuing a UAO to the PRPs.

ENFORCEMENT CONFIDENTIAL ADDENDUM
LINDSAY LIGHT II SITE
CHICAGO, COOK COUNTY, ILLINOIS
SEPTEMBER 1999

ENFORCEMENT CONFIDENTIAL

This addendum updates the Enforcement Confidential Addendum dated April 1996.

In June 1996 U.S. EPA issued a unilateral Administrative Order to Kerr-McGee Corporation (now known as Kerr-McGee L.L.C.) and Chicago Dock and Canal Trust (now known as River East L.L.C.) to remove contamination to a cleanup level of 5 picocuries per gram total radium (radium-226 + radium-228) over background at this site. The UAO also required off-site surveying and sampling as necessary as at a minimum implementation of the standards of 40 C.F.R. 192, if deemed necessary. The PRPs complied with the UAO. The site owner, River East L.L.C. is currently redeveloping the Site for condominiums, a hotel, theaters, restaurants, and other commercial uses. The removal action and the redevelopment of the Site will result in the removal of all elevated levels of radioactive material from within the Site's legal description.

During the cleanup at the Site, radiation surveillance located elevated levels of radiation present in the soils under the sidewalks and streets adjacent to the Site, i.e. adjacent to the legal description of the property located at 316 East Illinois Street. This radioactive material appeared to have been backfill from the Site that was placed around various utilities, e.g. electrical and water. The shielding effects of the asphalt, concrete, and overburden prevents the release of the radiation to humans or the environment. The radioactive material is not water soluble. As long as the asphalt, concrete and overburden is in place the threat to human health and the environment is contained. Nonetheless, the radioactive materials may be exposed and released if the shielding materials are disturbed or if a person tunneled into or otherwise came into contact with the radioactive materials.

Kerr-McGee L.L.C. and River East L.L.C. are planning to enter into a Right-of-Way Agreement with the City of Chicago that would restrict access to the contaminated areas and, if access was needed, a health and safety plan would be implemented that would provide for the proper protection of potentially exposed workers and the proper management of any disturbed or exposed radioactive materials. The Agreement also provides that the City of Chicago must give all utilities notice of the contamination and must maintain a database that will notify any person seeking a permit for access to the rights-of-way of the presence of the

contamination and their obligation to implement the health and safety plan. The City will send U.S. EPA will copies of all permit requests. The City will record the Agreement with the Cook County Recorder of Deeds on the rights-of-ways and it will run with the land. If U.S. EPA does not approve the Agreement it will become null and void.

U.S. EPA has not yet issued a completion letter to the PRPs, however, it is believed that the present removal action will eliminate all elevated contamination from the Site as its legal description appears in the Recorder of Deeds. The Right-of-Way Agreement is the institutional control for the contamination in the rights-of-ways. The executed and recorded Agreement will satisfy the removal requirements for the radioactive contamination in the rights-of-way adjacent to the Site.

Although U.S. EPA and the PRPs conducted off-site radiation surveillance, because of the presence of overburden there will always remain the possibility that undiscovered off-site radioactive contamination beyond the rights-of-ways is present. This Action Memorandum Amendment addresses only the off-site contamination located in the rights-of-ways adjacent to the Site.

On January 20, 1999 U.S. EPA issued a demand letter to Kerr-McGee and River East for its costs related to the Lindsay Light II Site from 1981 through March 13, 1996 which were estimated at \$30,457.15. U.S. EPA incurred the costs in its oversight of an AOC entered into with Chicago Canal Dock and Trust for investigatory work at the Site. The PRPs paid the demand in full within 30 days. Once the present removal action is completed another demand letter will be issued to Kerr-McGee and River East or their predecessor corporations for costs incurred in the oversight of the UAO.

ATTACHMENT 1

**APRIL 22, 1995 ACTION MEMORANDUM
V.J. SIMON, OSC To
WILLIAM E. MUNO, DIRECTOR, SUPERFUND DIVISION**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

11 WEST JACKSON BOULEVARD

CHICAGO, ILLINOIS 60604-0500

APR 22 1995

SE-5J

MEMORANDUM**DATE:**

SUBJECT: **ACTION MEMORANDUM** - Determination of Threat to Public Health and the Environment at the Lindsay Light II Site Chicago, Cook County, Illinois (Site Spill ID # YT)

FROM: V.J. Simon, On-Scene Coordinator *V.J. Simon*
Emergency and Enforcement Response Branch

TO: William E. Muno, Director
Superfund Division

I. PURPOSE

The purpose of this Memorandum is to document the determination of an imminent and substantial threat to public health and the environment posed by the presence of thorium at the Lindsay Light II site. Currently, Lindsay Light II is a public parking lot, which is paved with asphalt, that has gamma levels as high as 252 times background or 1.1 milliRoentgen per hour¹. A person using the parking lot could receive a 10⁴ risk with as little as 29 minutes exposure per day for a 250 day work year at the point of peak exposure.

Uranium and thorium soil concentrations have been measured to a limited extent and exceed background soil levels up to 43 and 812 times, respectively. From this data, radium levels can be projected. Assuming cleanup to the radium levels of Title 40, Part 192, of the Code of Federal Regulations (CFR), uranium and thorium mill tailings standards, present peak values would exceed cleanup levels by 222 times. The radium cleanup level in 40 CFR 192 is 5 picoCuries per gram.

In May 1994, an extent of contamination study was conducted by the property owner, The Chicago Dock & Canal Trust, as required by an Administrative Order by Consent (AOC) dated January 27, 1994. A major result from this study was that there were areas exhibiting elevated gamma levels as high or higher than U.S. EPA

¹ For gamma radiation, milliRoentgen and millirem are numerically equal.

had previously detected which could be abated by removing thorium. It is anticipated that removal of the thorium will be undertaken pursuant to a Unilateral Administrative Order (UAO) by the potentially responsible parties (please see confidential enforcement addendum). The response activities will require approximately 60 on-site days to complete.

This site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID # ILD 0000002212

A. Physical Location

The Lindsay Light II Site, a public parking lot, is located at 316 East Illinois Street, Chicago, Cook County, Illinois. This 3-acre Site is bounded by Grand Avenue, Illinois Street, McClurg Court and Columbus Drive and is situated in an urban area called the Gold Coast. This property is surrounded by commercial and residential buildings with a shopping mall located approximately 200 feet to the southeast. The Chicago River is located 1 mile south of the Site and Lake Michigan is about 1.5 miles east of the Site. This Site is surrounded by two-foot high steel guardrails; however, it does not totally restrict access. It is possible to step over the guardrails if you want to gain entry to the parking lot or use it as a short-cut. Also, there are two automated ticket entrances and two manned cash booths.

B. Site description and background

The Lindsay Light II Site was once occupied by the Lindsay Light and Chemical Company, which made incandescent gas mantles for home and street lighting. Earlier reports show this company first imported and then manufactured mantles. These activities occurred from at least 1910 until 1936 at 161 East Grand, which is .25 miles west of the Site. It is unclear what Lindsay Light actually did at 316 East Illinois; however, records from the Dock and Canal Trust indicate this site was a stable, and that Lindsay Light leased portions of the building from Chicago Dock and Canal Trust from 1915-1933. Sometime after 1933, Lindsay Light moved to West Chicago, Illinois and was later purchased by American Potash, who in turn was purchased by Kerr-McGee Chemical Company.

Gas mantle manufacturing involves dipping gauze mantle bags into solutions containing thorium nitrate and small amounts of cerium, beryllium and magnesium nitrates. The principal ingredient in thorium nitrate is radioactive thorium, specifically, thorium-232 and thorium-228. Thorium-232, which is the parent of the Thorium Decay Series, has a half-life of 14 billion years. Thorium-228 has a 2 year half-life. It is believed that the principal source of contamination at this Site is the Thorium Decay Series.

C. Current site conditions

Conditions have not changed since the site assessment on June 3, 1993. This property is still operated as a public parking lot.

D. Other actions to date

From June 30, 1993 to July 30, 1993, each manned cash booth was monitored by a thermoluminescent dosimeter (TLD) badge. TLD results for these booths were as follows:

TLD #	
9035	0.00058 millirem per hour or about 1.2 millirem per year
9036	-0.00184 millirem per hour or -3.7 millirem per year (which means all values are effectively zero)

These results were compared to NRC regulations in the new Title 10, Part 20.1301, Code of Federal Regulations of 100 millirem per year and 2 millirem per hour for individual members of the general public. The above results did not exceed either of these relevant levels indicating that the attendants are not in any present danger.

During May 1994, field work necessary for the AOC-required extent of contamination study was conducted. This study was later submitted in a final report which was approved by U.S.EPA on March 13, 1996. A brief summary of the report would be as follows: 12 areas exhibiting elevated gamma levels, maximum contamination depth extends to 2.5 meters (8 feet) below the ground surface, and Resource Conservation and Recovery Act (RCRA) characteristic waste is **not** present on-site. The map included in this report has been reproduced in Figure 1 to show the 12 contaminated areas. Also during this two year period, The Chicago Dock & Canal Trust voluntarily placed notices at the entrances to the parking lot informing patrons of the risks associated with the lot.

The City of Chicago, the Illinois Environmental Protection Agency, and the Illinois Department of Nuclear Safety (IDNS) are aware of site conditions and plans described in this Action Memorandum.

III. THREAT TO PUBLIC HEALTH OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Lindsay Light II site present an imminent and substantial endangerment to public health or welfare or the environment, based upon factors set forth in the National Contingency Plan (NCP), 40 CFR 300.115 (b)(2). These factors include:

Figure 1: Extent of Contamination Map reproduced from Final Report prepared by STS Consultants, Ltd. (Deerfield, Illinois) to satisfy Administrative Order by Consent No. V-W-94-C-22

a) actual or potential exposure to nearby populations, animals, or the food chain from hazardous substances or pollutants or contaminants:

This factor is present at the site due to the existence of a public parking lot on property found to have gamma readings measured as high as 1.1 milliRoentgen per hour. This reading is 252 times the background level measured for the site.

Gamma rays are penetrating radiation indistinguishable from X-rays which can be absorbed by tissue in the human body, thereby increasing the cancer risk for the person exposed. The excess risk to a transient spending 29 minutes per day for a 250 day work year at this peak exposure spot is 10^{-4} . Transients were judged to be parking lot customers, people using the lot for a short cut or temporary workers.

The excess risk to a parking lot attendant spending an 8 hour shift for 250 days per work year at this peak spot is 2×10^{-3} . Direct measurements with survey instruments at the present parking lot attendant stations found background radiation levels and these were confirmed with longer measurements using TLDs. There is no guarantee these stations could not be moved to the peak point at some future time, thereby introducing the potential for exposure and risk to be actualized.

b) high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate:

The presence of elevated gamma exposure levels at the site validates subsurface deposits of radiological contaminants. The dominant concern is intrusion into these materials that will contaminate the intruder and their equipment and, further, lead to dispersal or spreading of the contaminants from its present locations. Such a scenario probably has arisen, and could again arise, with parking lot excavation where workers and their equipment are contaminated by radioactive soils, dry soil is dispersed in the wind and excavation spoils are moved offsite. The number of people exposed could be greatly increased and might include workers, their families if contaminants are carried home, workers who subsequently use contaminated machinery, residents near the parking lot who might be subject to wind dispersed soils and users of excavation spoils. Such spreading could occur within downtown Chicago where the parking lot is located and out for several miles depending upon where workers reside and where spoils are used. This is a plausible scenario since recent plans were to build a large hospital building on this site.

c) other situations or factors which may pose threats to public health or welfare or the environment:

This factor is present at the Site due to the property's potential for future development. Such construction might entail excavating into potentially contaminated soils for placement of building footings and cause increased releases into the environment and human exposure to contaminants. Also, it has not been determined whether subsurface contaminants are soluble. If they are there could be spreading via groundwater.

This site appears to be gridded with sewer lines. The sewers could be conduits for the spread of both soluble and insoluble materials offsite, for extension of the region of contamination and for an increase in the potential for workers (sewer workers) to be exposed.

IV. ENDANGERMENT DETERMINATION

Given the nature of the Site, with unrestricted access to contaminants, the nature of these contaminants - gamma rays, which can not be stopped but attenuated; and an exposure pathway of direct contact, as described in Sections II and III, the actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS

Removal activities at the Site are to include: removal of contamination from at least 12 areas in the parking lot and disposal of all characterized wastes identified and generated during removal activities.

Specifically, the following activities will be necessary:

- 1) Develop and implement site health, safety and security measures.
- 2) Develop and implement air monitoring program.
- 3) Remove contamination until the cleanup criterion of 5 picoCuries per gram total radium (radium-226 + radium-228) over background is achieved. This cleanup criterion will be met in each 15 centimeter layer below the surface. Averaging over areas up to 100 square meters will be allowed, but only after reasonable efforts have been made to achieve levels As Low As Reasonably Achievable (ALARA). It is not U.S. EPA's intent to leave any elevated areas of contamination if at all possible.
- 4) Establish local background for radium-226 and radium-228 from four soil samples taken on the property at points where the

gamma exposure rates are lowest plus eight soil samples taken off-site, but in the immediate vicinity, of the parking lot.

- 5) Transport and dispose of all characterized or identified hazardous substances, pollutants, wastes or contaminants at a RCRA/CERCLA/IDNS approved disposal facility in accordance with the U.S. EPA Off-Site Rule (58 F.R. 49200).
- 6) Conduct off-site surveying and sampling as necessary and, at a minimum, implement 40 CFR 192, if deemed necessary should contamination be discovered beyond current site boundaries.
- 7) Backfill all excavations with suitable material, and if soil, test borrow source for radioactivity and other pertinent characteristics in 40 CFR Part 261.

Removal activities will require approximately 60 on-site working days to complete. The threat posed by continual gamma-ray exposure meets the criteria listed in Section 300.415(b)(2) of the NCP and are consistent with any long-term remedial action which may be required.

The OSC has begun planning for the provision of post-removal site control, consistent with the provisions of Section 300.415(k) of the NCP. However, the nature of the removal should eliminate all exposure threats, which should minimize the need for post-removal site control.

The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants or contaminants at the facility which may pose an imminent and substantial endangerment to public health and safety, and to the environment. These response actions do not impose a burden on the affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

Applicable or Relevant and Appropriate Requirements (ARARS)

All applicable or relevant and appropriate requirements (ARARS) of Federal law will be complied with to the extent practicable.

The primary Federal ARAR for soil cleanup criteria is Title 40, Part 192, of the Code of Federal Regulations, "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings". Ancillary ARARS include the NRC's Title 10, Part 20, of the Code of Federal Regulations, "Standards for Protection Against Radiation", NRC Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors", and the Department of Transportation's Title 49 for shipping hazardous materials. Also, many of the regulations carried out by NRC have been delegated to IDNS.

U.S. EPA is awaiting a waste designation from IDNS. Once IDNS classifies the waste, U.S. EPA will incorporate that information into remediation of the Site. IDNS has state jurisdiction over the radiological contamination at the site.

In accordance with the revised NCP, Section 300.825(a)(1), a list of State ARARs will be added to the administrative record.

VI. CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED

Delayed or non-action may result in increased likelihood of direct contact threat to human populations accessing and working on the Site. Also, since there is no threshold for cancer the continued exposure to gamma rays will increase the cancer risk.

VII. OUTSTANDING POLICY ISSUES

The proposed action may result in U.S. EPA re-examining its position on the Lindsay Light I site, which is the building described in Section IIB. This building is also thorium-contaminated; however, gamma levels above background can not be detected outside the building. The only persons exposed to the contamination are occupants or visitors to this building. The Lindsay Light I site was referred to the Occupational Safety and Health Administration (OSHA) at two different times but they are constrained by their regulations.

VIII. ENFORCEMENT

For administrative purposes, information concerning confidential enforcement strategy for this site is contained in the Enforcement Confidential Addendum.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Lindsay Light II site, in Chicago, Illinois, developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for this site. Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal action. You may indicate your decision by signing below:

APPROVE:

 4/22/76

DIRECTOR, SUPERFUND DIVISION

DISAPPROVE: _____

DIRECTOR, SUPERFUND DIVISION

Enforcement Confidential Addendum

Three Attachments

1. Action Memorandum dated July 11, 1994
2. Action Memorandum dated October 5, 1995
3. Index to the Administrative Record

cc: E. Watkins, U.S. EPA HQ, 5202G
D. Henne, U.S. Department of Interior
G. King, IEPA Superfund Coordinator
J. Klinger/T.Runyon, Illinois Department of Nuclear Safety
L. Robinson, City of Chicago

bcc: A. Baumann, SRT-4J
 F. Rollins, SE-5J
 R. Karl, SE-5J
 L. Fabinski, ATSDR, ATSD-4J
 W. Messenger, SE-5J
 J. Perrecone, P-19J)
 EERB Read File (C. Beck), SE-5J
 EERB Delivery Order File (M. Gustafson), SE-5J
 EERB Site File (A. Matlak, SF Central File Room), HM-7J
 Contracting Officer, MCC10-J
 V. Simon. SE-5J
 N. Zusman, CS-29A
 D. Regel, SE-5J
 L. Jensen, AB-17J



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

MEMORANDUM

DATE: JUL 11 1994

SUBJECT: ACTION MEMORANDUM - Determination of Threat to Public Health or the Environment at the Lindsay Light II Site Chicago, Cook County, Illinois (Site Spill ID #2A)

FROM: Verneta J. Simon, On-Scene Coordinator *Frank Rollins*
Emergency and Enforcement Response Branch - Section III

TO: William E. Muno, Director
Waste Management Division

THRU: *for* Jodi L. Traub, Acting Associate Division Director
Office of Superfund

I. PURPOSE

The purpose of this Memorandum is to document the determination of an imminent and substantial threat to public health and the environment posed by the existence of elevated gamma levels as high as 280 microRoentgen per hour (μR/hr) at the Lindsay Light II Site, a public parking lot located at 316 East Illinois Street in Chicago, Illinois.

Potentially Responsible Party (PRP) lead response actions are being taken pursuant to an Administrative Order by Consent (AOC) (please see confidential enforcement addendum). These response actions essentially require an extent of contamination study which will help determine the scope of future response actions. Currently, the parking lot is covered with asphalt and/or concrete and persons parking at this lot are not expected to be exposed long enough to be adversely affected by the gamma rays emitted. The gamma ray exposure received by parking lot attendants and any long-term area transients may pose an imminent and substantial threat to public health.

This site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID # ILD 0600002212

A. Physical Location

The Lindsay Light II Site, a public parking lot, is located at 316 East Illinois Street, Chicago, Cook County, Illinois. This 3-acre Site is bounded by Grand Avenue, Illinois Street, McClurg Court and Columbus Drive and is situated in a urban area called the Gold Coast. This property is surrounded by commercial and residential buildings with a shopping mall located approximately 200 feet to the south east. The Chicago River is located 1 mile south of the Site and Lake Michigan is about 1.5 miles east of the Site. This Site has the usual metal barricades for a parking lot; however, it does not totally restrict access. It is possible to step over the barricades if you want to gain entry to the parking lot or use it as a short-cut.

B. Site description and background

The Lindsay Light II Site was once occupied by the Lindsay Light Chemical Company, which made incandescent gas mantles for home and street lighting. Earlier reports show this company first imported and then manufactured mantles. These activities occurred from at least 1910 until 1936 at 161 East Grand, which is .25 miles from the Site. It is unclear what Lindsay Light actually did at 316 East Illinois, however, records from the Chicago Dock and Canal Trust indicate this site was a stable, and that Lindsay Light leased portions of the building from Chicago Dock and Canal Trust from 1915-1933. Sometime after 1933, Lindsay Light moved to West Chicago, Illinois and was later purchased by American Potash, who in turn, was purchased by Kerr-McGee Chemical Company.

Gas mantle manufacturing involves dipping gauze mantle bags into solutions containing thorium nitrate and small amounts of cerium, beryllium and magnesium nitrates. The principal ingredient in thorium nitrate is radioactive thorium, specifically, thorium-232. Thorium-232, which is the parent of the Thorium Decay Series, has a half-life of 14 billion years. It is believed that the principal source of contamination at this Site is the Thorium Decay Series.

C. Current site conditions

Conditions have not changed since the site assessment on June 3, 1993. This property is still operated as a public parking lot with attendants stationed as shown on Figure 1.

D. Other actions to date

From June 30, 1993 to July 30, 1993, two thermoluminescent dosimeter (TLD) badges were placed in the ticket booths shown in Figure 1. TLD results for these locations were as follows:

TLD #

9035 0.00058 millirem per hour or about 1.2 millirem per year
 9036 -0.00184 millirem per hour or -3.7 millirem per year
 (which means all values are effectively zero)

These results were compared to the Nuclear Regulatory Commission (NRC) regulations in the new Title 10, Part 20.1301, Code of Federal Regulations of 100 millirem per year and 2 millirem per hour for individual members of the general public. The above results did not exceed either of these relevant levels.

The City of Chicago, the Illinois Environmental Protection Agency, and the Illinois Department of Nuclear Safety are aware of site conditions and plans described in this Action Memorandum.

III. THREAT TO PUBLIC HEALTH OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Lindsay Light II site may pose an imminent and substantial endangerment to public health or welfare or the environment, based upon factors set forth in the National Contingency Plan (NCP), 40 CFR 300.415 (b)(2). These factors include:

a) actual or potential exposure to nearby populations, animals, or the food chain from hazardous substances or pollutants or contaminants:

This factor is present at the site due to the existence of a public parking lot on property found to have gamma readings measured as high as 280 microRoentgen per hour (uR/hr) on a Ludlum Model 19 Micro-R meter. This reading is 14 times the background level, 20 uR/hr, measured for the site.

Gamma rays are penetrating radiation indistinguishable from X-rays which can be absorbed by tissue in the human body, thereby increasing the cancer risk for the person exposed. The excess risk to a transient spending 1 hour per day for a 250 day work year at this peak exposure spot is 5×10^{-5} . Transients were judged to be parking lot customers, people using the lot for a short cut or temporary workers. Such a risk is not justified by personal benefit to the transient nor by societal benefit.

The excess risk to a parking lot attendant spending an 8 hour shift for 250 days per work year at this spot is 3×10^{-4} . Again, such an exposure entails cancer risk that would have no personal or societal benefit. Direct measurements with survey instruments at the present parking lot attendant stations found background radiation levels and these were confirmed with longer

measurements using thermoluminescent dosimeters (TLDs). There is no guarantee these stations could not be moved to the peak point at some future time, thereby introducing the potential for exposure and risk to be actualized.

b) high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate:

The presence of elevated gamma exposure levels at the site validates subsurface deposits of radiological contaminants. The dominant concern is intrusion into these materials that will contaminate the intruder and their equipment and, further, lead to dispersal or spreading of the contaminants from its present locations. Such a scenario probably has arisen, and could again arise, with parking lot excavation where workers and their equipment are contaminated by radioactive soils, dry soil is dispersed in the wind and excavation spoils are moved offsite. The number of people exposed could be greatly increased and might include workers, their families if contaminants are carried home, workers who subsequently use contaminated machinery, residents near the parking lot who might be subject to wind dispersed soils and users of excavation spoils. Such spreading could occur within downtown Chicago where the parking lot is located and out for several miles depending upon where workers reside and where spoils are used. This is a plausible scenario since recent plans were to build a large hospital building on this site.

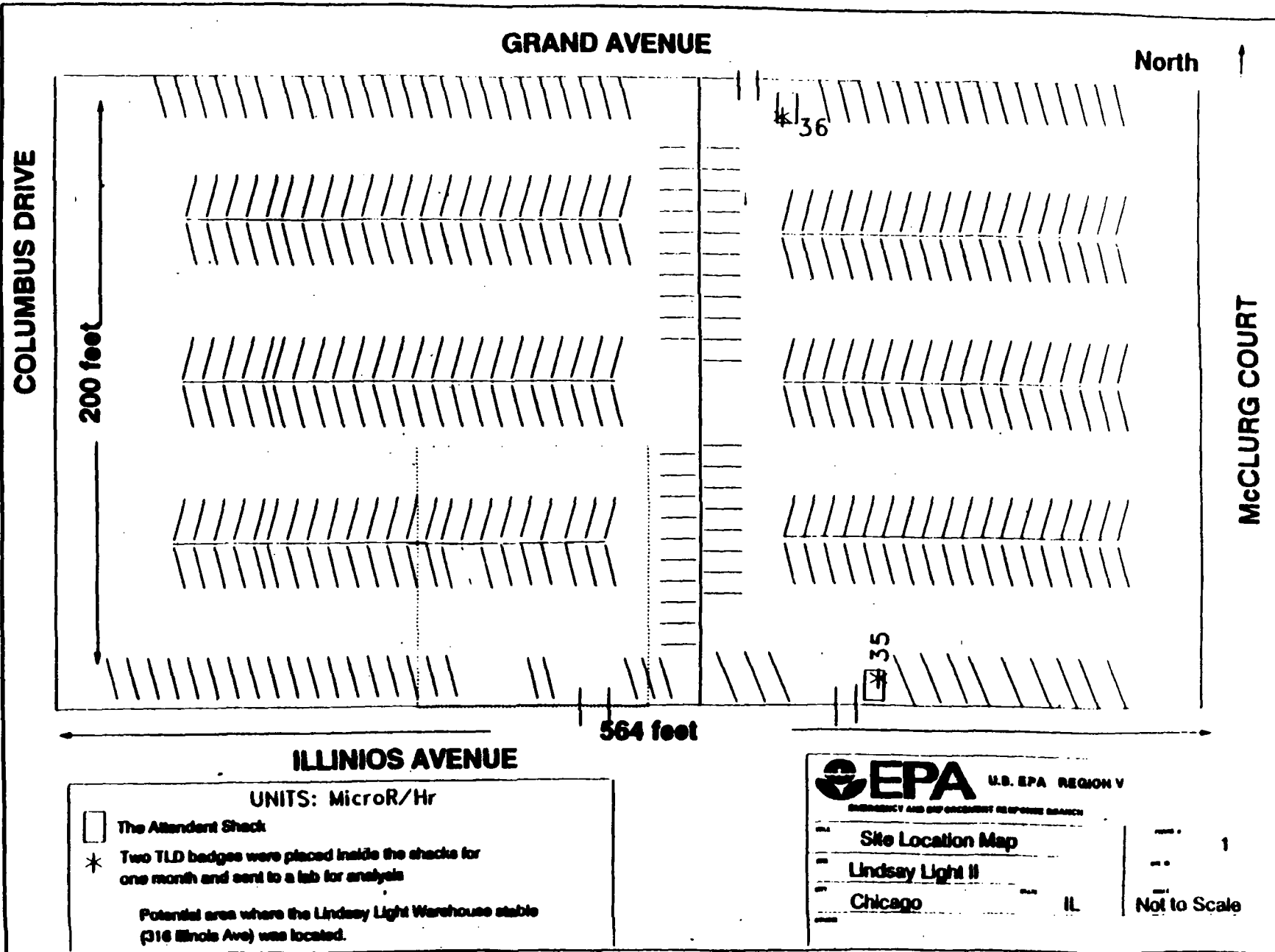
c) other situations or factors which may pose threats to public health or welfare or the environment

This factor is present at the Site due to the property's potential for future development. Such construction might entail excavating into potential contaminated soils for placement of building footings and cause increased releases into the environment and human exposure to contaminants. Also, it has not been determined whether subsurface contaminants are soluble. If they are there could be spreading via groundwater.

This site appears to be gridded with sewer lines. These could be conduits for the spread of both soluble and insoluble materials offsite, for extension of the region of contamination and for an increase in the potential for workers (sewer workers) to be exposed.

IV. ENDANGERMENT DETERMINATION

Given the nature of the Site, with unrestricted access to contaminants, the nature of these contaminants - gamma rays, which can not be stopped but attenuated; and an exposure pathway of direct contact, as described in Section II and III, the actual or threatened releases of hazardous substances from this Site, if



not addressed by implementing the response action described in this Action Memorandum, may pose an imminent and substantial endangerment to public health, or welfare, or the environment due to the exposure to gamma rays, of parking lot attendants and/or site transients, which are above U.S. EPA's acceptable excess carcinogenic risk of 1×10^{-4} .

V. PROPOSED ACTIONS AND ESTIMATED COSTS

Pursuant to the AOC, the PRP intends to undertake the following actions to determine the extent of the contamination of the Site:

- 1) Develop and implement site health and safety plan.
- 2) Conduct land surveying to the extent necessary to locate all property boundaries and features, sample locations and areas having elevated radiation levels.
- 3) Place borings in several locations for the purpose of measuring subsurface radiation levels. Measurements shall be recorded until the natural soils are reached or radiation levels reach background, whichever is the greatest depth.
- 4) Collect soil samples from the borings and analyze for radionuclide content and RCRA characteristics. These results will then be used by the PRP to correlate subsurface radiation levels and radionuclide content.
- 5) Transport and dispose of all characterized or identified hazardous substances, pollutants, wastes or contaminants at a RCRA/CERCLA approved disposal facility in accordance with the U.S. EPA off-site rule.

The OSC has begun planning for the provision of post-removal site control, consistent with the provisions of Section 300.415(k) of the NCP. However, the nature of future response actions should eliminate all exposure threats, which should minimize the need for post-removal site control.

The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants or contaminants at the facility which may pose an imminent and substantial endangerment to public health and safety, and to the environment. These response actions do not impose a burden on the affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

Applicable or Relevant and Appropriate Requirements (ARARS)

All applicable or relevant and appropriate requirements (ARARS) of

Federal law will be complied with to the extent practicable. A letter was sent to the Illinois Department of Nuclear Safety on June 21, 1993, requesting clarification on the waste designation any radiological material would be called. Their response was to classify waste from this site as "source" material and is contained in Attachment 1. Conversations held with representatives of the Illinois Environmental Protection Agency were that it was not necessary to send an ARARs letter to them, since radiological matters are handled by the Illinois Department of Nuclear Safety, however, if it appears that any other issues occur during this action which are non-radiological an ARARs letter will be sent.

In accordance with the revised NCP, Section 300.825(a)(1), the response from the State to the request for ARARs will be added to the administrative record for this site once the response has been received and evaluated.

VI. CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED

Delayed or non-action may result in increased likelihood of direct contact threat to human populations accessing and working on the Site. Also, since there is no threshold for cancer, the continual exposure to gamma rays will increase the cancer risk.

VII. OUTSTANDING POLICY ISSUES

None.

IX. ENFORCEMENT

For administrative purposes, information concerning confidential enforcement strategy for this site is contained in the Enforcement Confidential Addendum.

X. RECOMMENDATION

This decision document represents the selected removal action for the Lindsay Light II site, in Chicago, Illinois, developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for this site. Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal action.

APPROVE:

Wm. E. Myers 7/11/94
DIRECTOR, WASTE MANAGEMENT DIVISION

DISAPPROVE:

DIRECTOR, WASTE MANAGEMENT DIVISION

Attachments: Enforcement Confidential Addendum

1. IDNS Letter Dated August 27, 1993
2. Index to the Administrative Record

cc: Terri Johnson, OS-210

**Don Henne, U.S. Department of the Interior
Office of Environmental Policy and Compliance
U.S. Custom House, Room 217
200 Chestnut Street
Philadelphia, PA 19106**

Gary King, IEPA Superfund Coordinator

bcc: A. Baumann, HSRL-5J

R. Powers/R. Buckley, HSE-GI

R. Bowden, HSE-5J

J. Cisneros, HSE-5J

L. Fabinski, ATSDR, HSRL-5J

O. Warnsley, CRU, HSRLT-5J

T. Lesser, P-19J

F. Myers, MF-10J

EERB Read File (M. Johnson)

EERB Site File (SF Central File Room)

V. Simon, On-Scene Coordinator

M. Radell, ORC

D. Regel, HSE-5J

L. Glatstein, AT-18J

L. Jensen, AT-18J

STATE OF ILLINOIS
DEPARTMENT OF NUCLEAR SAFETY
1038 OLIVER PARK DRIVE
SPRINGFIELD, ILLINOIS 62704

Jim Edgar
Governor

Thomas W. Ortzger
Director

August 27, 1993

Mr. Rick Karl, Acting Chief
Emergency and Enforcement Response Branch
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Dear Mr. Karl:

This is in response to your June 21, 1993, request for assistance regarding classification of radioactive contamination at two locations in Chicago and one West Chicago location. We have reviewed all available information concerning these locations and make the following recommendations:

1. 316 East Illinois St., Chicago - Radioactive material at this location should be classified as "source" material. This location was apparently a warehouse facility used in conjunction with the Lindsay Light Chicago gas mantle manufacturing operation.
2. 161 East Grand, Chicago - Radioactive material at this location should be classified as "source" material. This location apparently housed the corporate offices for Lindsay Light and was the manufacturing operation for the gas mantles. However, there is no substantive information that indicates that thorium was actually extracted from ore at this location. Lindsay Light produced thorium nitrate and used it for the gas mantle manufacturing operation, and, in fact, exported thorium nitrate during the period in question. The exact location where the thorium nitrate was produced is unknown. Therefore, the contamination associated with this property must be assumed to be associated with the manufacturing of gas mantles and should be classified as "source" material.
3. 185 West Washington, West Chicago - Our information indicates that this location was used as a laboratory facility in support of Kerr-McGee activities at their West Chicago site. Since all of the contamination associated with the Kerr-McGee West Chicago operations have been determined to be "Byproduct material", the contamination at this location should be classified as "Byproduct Material" as defined in 32 Ill. Adm. Code 332.20.

Mr. Rick Kari
August 27, 1993
Page 2

Please note that the above is based on a careful review of very limited information. If we obtain additional information that alters the above recommendations, we will inform you promptly. We hope this information is helpful and if we can be of additional assistance please contact us.

Sincerely,



Joseph G. Klinger,
Head of Licensing
Division of Radioactive Materials

JGK:ren

ATTACHMENT 2

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGIONAL ACTION

ADMINISTRATIVE RECORD

EPA

LINDSAY LIGHT II SITE,
CHICAGO, ILLINOIS

May 2, 1994

<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
06/01/93	Karl, R., U.S. EPA	Klinger, J., Ill. Dept. of Nuclear Safety	Letter to Ill. Dept. of Nuclear Safety (IDNS)	1
06/13/93	Kouris, T., Ecology & Environment, Inc.	Pfundheller, J., U.S. EPA	Letter re: Site Assessment	4
06/16/93	TMA Eberline	Ecology & Environment, Inc.	Thermoluminescent Dosimeter Badges Data	1
06/27/93	Klinger, J., Ill. Dept. of Nuclear Safety	Karl, R., U.S. EPA	Response to U.S. EPA Letter Dated 6/21/93	1
01/27/94	Muno, W., U.S. EPA	Chicago Dock & Canal Trust	Administrative Order by Consent	15
00/00/00	U.S. EPA	U.S. EPA	Action Memorandum (Pending)	



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

-- WEST JACKSON BOULEVARD
CHICAGO IL 60604-3590

MEMORANDUM

DATE:

FILE TO THE ATTENTION OF:

SUBJECT: ACTION MEMORANDUM - Determination of Threat to Public Health or the Environment at the Lindsay Light II Site Chicago, Cook County, Illinois (Site Spill ID #YT)

FROM: Verneta J. Simon, On-Scene Coordinator *Verneta J. Simon*
Emergency and Enforcement Response Branch - Section III

TO: William E. Muno, Director
Superfund Division

I. PURPOSE

The purpose of this Memorandum is to document the determination of an imminent and substantial threat to public health and the environment posed by the results of a Potentially Responsible Party (PRP) lead extent of contamination study at the Lindsay Light II Site, a public parking lot located at 316 East Illinois Street in Chicago, Illinois.

Prior PRP actions were conducted pursuant to an Administrative Order by Consent (AOC) dated January 27, 1994, (please see confidential enforcement addendum) and required the following actions:

- 1) Develop and implement site health and safety plan.
- 2) Conduct land surveying to the extent necessary to locate all property boundaries and features, sample locations and areas having elevated radiation levels.
- 3) Place borings in several locations for the purpose of measuring subsurface radiation levels. Measurements shall be recorded until the natural soils are reached or radiation levels reach background, whichever is the greatest depth.
- 4) Collect soil samples from the borings and analyze for radionuclide content and RCRA characteristics. These results will then be used by the PRP to correlate subsurface radiation levels and radionuclide content.
- 5) Transport and dispose of all characterized or identified hazardous substances, pollutants, wastes or contaminants at a RCRA/CERCLA approved disposal facility in accordance with the U.S. EPA off-site rule.

This site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID # ILD 0000002212

Please refer to the previous Action Memorandum dated July 11, 1994 for a description of site conditions and background location.

Activities completed at this site, besides the extent of contamination study, have been the PRP (Chicago Dock and Canal Trust) voluntarily placed notices at the entrance to the parking lot informing patrons of the risks associated with the lot. The PRP also appears to have successfully encouraged another company, Kerr-McGee, to participate in site remediation. On September 8, 1995, U.S. EPA, Chicago Dock and Canal Trust, and Kerr-McGee met to discuss the framework of future site remediation including the drafting of either an AOC or Unilateral Administrative Order (UAO) to implement remediation work by the PRPs.

III. THREAT TO PUBLIC HEALTH OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Please refer to Section III of the attached Action Memorandum dated July 11, 1994.

IV. ENDANGERMENT DETERMINATION

Please refer to Section IV of the attached Action Memorandum dated July 11, 1994.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

Pursuant to the AOC or UAO, the PRP will fully remediate the site until maximum protectiveness of the human health and the environment is achieved. This will involve at a minimum the following actions.

- 1) Develop and implement site health and safety plan.
- 2) Conduct off-site radiological surveying and sampling as necessary and, at a minimum implement 40 CFR 192 if deemed necessary should extensive contamination be discovered beyond current site boundaries.
- 3) Transport and dispose of all characterized or identified hazardous substances, pollutants, wastes or contaminants at a RCRA/CERCLA approved disposal facility in accordance with the U.S. EPA off-site rule.

The OSC has begun planning for the provision of post-removal site control, consistent with the provisions of Section 300.415(k) of the NCP. However, the nature of future response actions should

eliminate all exposure threats, which should minimize the need for post-removal site control.

The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants or contaminants at the facility which may pose an imminent and substantial endangerment to public health and safety, and to the environment. These response actions do not impose a burden on the affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

Applicable or Relevant and Appropriate Requirements (ARARS)

All applicable or relevant and appropriate requirements (ARARS) of Federal law will be complied with to the extent practicable. A letter was sent on August 25, 1995, by Kerr-McGee to the Illinois Department of Nuclear Safety (IDNS) requesting that the IDNS change the waste designation from this site to 11(e)2 "by-product" material and this request is contained in Attachment 1. Correspondence dated August 27, 1993 from the IDNS stated waste from this site should be called "source" material. Once Kerr-McGee receives a response from the IDNS, the waste designation issue should be finally resolved and incorporated into the remediation of this site.

In accordance with the revised NCP, Section 300.825(a)(1), the response from the State to the request for ARARs will be added to the administrative record for this site once the response has been received and evaluated.

VI. CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED

Please refer to Section VI of the attached Action Memorandum dated July 11, 1994.

VII. OUTSTANDING POLICY ISSUES

None.

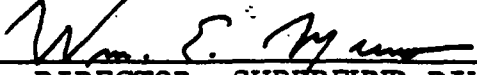
IX. ENFORCEMENT

For administrative purposes, information concerning confidential enforcement strategy for this site is contained in the Enforcement Confidential Addendum.

X. RECOMMENDATION

This decision document represents the selected removal action for the Lindsay Light II site, in Chicago, Illinois, developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based upon the Administrative Record for this site. Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal action.

APPROVE:



DIRECTOR, SUPERFUND DIVISION

10/5/95

DISAPPROVE:

DIRECTOR, SUPERFUND DIVISION

Attachments: Enforcement Confidential Addendum

- 1. Letter Dated August 25, 1995 from Kerr-McGee to the Illinois Department of Nuclear Safety (without enclosures)**
- 2. Action Memorandum dated July 11, 1994**
- 3. Index to the Administrative Record**

cc: Terri Johnson, OS-210

**Don Henne, U.S. Department of the Interior
Office of Environmental Policy and Compliance
U.S. Custom House, Room 217
200 Chestnut Street
Philadelphia, PA 19106**

Gary King, IEPA Superfund Coordinator

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
LINDSAY LIGHT II SITE
CHICAGO, ILLINOIS

ORIGINAL
May 2, 1994

<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
06/21/93	Karl, R., U.S. EPA	Klinger, J., Illinois Dept. of Nuclear Safety	Letter Illinois Dept. of Nuclear Safety	1
08/18/93	Kouris, T., Ecology & Environment, Inc.	Pfundheller, J., U.S.EPA	Letter re: Site Assessment	4
08/26/93	TMA Eberline	Ecology & Environment, Inc.	Thermoluminescent Dosimeter Badges Data	3
08/27/93	Klinger, J., Illinois Dept. of Nuclear Safety	Karl, R., U.S. EPA	Response to U.S. EPA Letter Dated 6/21/93	2
1/27/94	Muno, W., U.S. EPA	Chicago Dock & Canal Trust	Administrative Order by Consent	16
07/11/94	Simon, V., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum	12

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
LINDSAY LIGHT II
CHICAGO, ILLINOIS

UPDATE #1
SEPTEMBER 18, 1995

<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
09/00/93	Rogers & Associates Engineering Corporation	Chicago Dock & Canal Trust	Work Plan for Characterization of Radioactive Contamination, 316 East Illinois St., Chicago, Illinois: Appendix E, Supplemental; Other Sampling	17
10/05/95	Simon, V., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Determination of Threat to Public Health or the Environment at the Lindsay Light II Site	22

ATTACHMENT IV

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTIONADMINISTRATIVE RECORD
FOR
LINDSAY LIGHT II
CHICAGO, ILLINOISUPDATE #2
APRIL 1, 1996

<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
00/00/96	Simon, V., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Request for a Time Critical Removal Action at Lindsay Light II Site, Chicago, IL (Pending)	

ENFORCEMENT CONFIDENTIAL ADDENDUM
LINDSAY LIGHT II SITE/CHICAGO, COOK COUNTY, ILLINOIS
APRIL 1996

ENFORCEMENT CONFIDENTIAL

The Chicago Dock and Canal Trust ("CDCT") has owned the Site property since the mid-1800s. From 1915 until approximately 1932, CDCT leased the property to the now defunct Lindsay Light Co., Inc. ("Lindsay") for their operations, which historically imported thorium nitrate from Germany prior to World War I for use in the manufacture of incandescent mantles. When the war eliminated Lindsay's source of thorium, the company imported ores which included monazite sand from India, and bastnasite, and began processes to extract thorium, rare earth chemicals, and titanium material. Lindsay was the largest refiner of thorium and rare earth chemicals in the United States, was worth about \$1.3 million dollars in 1918, and furnished thorium and rare earth products to the Government in the development of the atomic bomb during World War II. Lindsay was also one of only two companies in the U.S. that provided raw thorium to the Radium Dial Company for their use in the manufacture of radioluminous dials for watches. The Radium Dial Company located in Ottawa, Illinois produced a Superfund National Priorities List ("NPL") Site consisting of fourteen separate areas which also includes emergency removal activities. In addition, Lindsay had several other locations in Chicago before moving to West Chicago, Illinois in the mid-1930s. Operations in West Chicago resulted in four NPL sites.

The Lindsay building at 316 East Illinois was demolished in approximately 1934, and the property turned into a paved parking lot in approximately 1950. Lindsay merged into American Potash & Chemical Corp. in 1958, and American Potash & Chemical Corp. changed its name to Kerr-McGee Chemical Corp. in 1974.

During the spring/summer of 1993, CDCT came forward and expressed an interest in turning the parking lot into developed property. CDCT was voluntarily cooperative with U.S. EPA in discussing the necessary actions prior to any development of the property. Several meetings were held between CDCT, the removal enforcement team, and Larry Jensen of U.S. EPA Air and Radiation Division. While the levels of radiation above the asphalt parking lot were not at removal action levels, it was possible that future development of the property by pulling off the asphalt and excavating the soils underneath for building could release gamma rays to the public and to the environment.

Before deciding to build, CDCT entered into an Administrative Order on Consent ("AOC") with U.S. EPA to study the extent of subsurface radiation and radionuclide content before excavation. The AOC was signed by U.S. EPA on January 27, 1994. The extent of contamination study was completed in May 1994, and was

approved on March 13, 1996.

Kerr-McGee Chemical Corporation was sent a 104(e) information request letter on December 3, 1993. While Kerr-McGee is participating in the cleanup of the sites in West Chicago, and was contacted by CDCT for participation in the extent of contamination study at this Site, it was originally unclear whether Kerr-McGee was a Potentially Responsible Party (PRP) at the Site. Because CDCT was voluntarily doing the study, U.S. EPA did not pursue Kerr-McGee as a PRP.

CDCT is a PRP at the Site as the current site owner/operator. Lindsay was responsible for generating the source of contamination at the Site; therefore, Kerr-McGee is a PRP at the Site as a result of its successor liability status from its relationship to Lindsay. A PRP meeting was then held between U.S. EPA, CDCT, and Kerr-McGee on September 8, 1995. CDCT and Kerr-McGee came forward and expressed an interest in an AOC to remediate the Site.

U.S. EPA has informed Kerr-McGee about other buildings in Chicago contaminated by Lindsay operations at 161 East Grand (Lindsay Light I), and at 22 West Hubbard (Lindsay Light III). U.S. EPA's intent is to negotiate with Kerr-McGee for the remediation of those other sites as well.

Since the September 1995 PRP meeting, the PRPs have informed U.S. EPA that they would prefer to comply under a Unilateral Administrative Order ("UAO"). U.S. EPA has issued a General Notice letter to both CDCT, and also to Kerr-McGee as the liable successor to the original Lindsay Light Company on April 18, 1996. A UAO is currently being drafted for issuance to both PRPs.

ATTACHMENT 2

MAP

ATTACHMENT 3

**U.S. EPA REMOVAL ACTION ADMINISTRATIVE RECORD
For LINSAY LIGHT II, CHICAGO, ILLINOIS**

ATTACHMENT 3

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTIONADMINISTRATIVE RECORD
FOR
LINDSAY LIGHT II SITE
CHICAGO, ILLINOISORIGINAL
MAY 2, 1994

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	06/21/93	Karl, R., U.S. EPA	Klinger, J., Illinois Dept. of Nuclear Safety	Letter re: Illinois Dept. of Nuclear Safety	1
2	08/18/93	Kouris, T., Ecology and	Pfundheller, J., U.S. EPA	Letter re: Site Assess- ment	4
3	08/26/93	TMA Eberline	Ecology and Environment, Inc.	Thermoluminescent Dosimeter Badges Data	3
4	08/27/93	Klinger, J., Illinois	Karl, R., U.S. EPA	Response to U.S. EPA Letter Dated 6/21/93	2
5	01/27/94	Muno, W., U.S. EPA	Chicago Dock & Canal Trust	Administrative Order by Consent	16
6	07/11/94	Simon, V., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum	12

UPDATE #1
SEPTEMBER 18, 1995

1	09/00/93	Rogers & Associates Engineering Corporation	Chicago Dock & Canal Trust	Work Plan for Character- ization of Radioactive Contamination, 316 East Illinois St., Chicago, Illinois: Appendix E, Supplemental; Other Sampling	17
2	10/05/95	Simon, V., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Determination of Threat to Public Health or the Environment at the Lindsay Light II Site	22

UPDATE #2 (REVISED)
APRIL 1, 1996

1	04/22/96	Simon, V., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Determination of Threat to Public Health and the Environment at the Lindsay Light II Site	40
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<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
<u>UPDATE #3</u> JUNE 3, 1996					
1	10/27/95	STS Consultants, Ltd.	U.S. EPA	The Chicago Dock & Canal Trust Report for Characterization Inves- tigation: Gamma Radiation Survey, Lindsay Light II Site w/Attachments A-E (3 Volumes)	1331
<u>UPDATE #4</u> JUNE 24, 1996					
1	10/25/96	Klinger, S., Illinois Dept. of Nuclear Safety	Thompson, R., U.S. EPA	Letter re: Classification of Radioactive Material at Lindsay Light II	1
2	05/30/96	Weber, M., Illinois EPA	Simon, V., U.S. EPA	Letter re: Coordination of Removal Effort and Identification of Appli- cable or Relevant and Appropriate Requirements (ARARs) for the Lindsay Light II Site	3
3	06/04/96	Allen, R., Illinois Dept. of Nuclear Safety	Simon, V., U.S. EPA	Letter re: Identification of Applicable or Relevant and Appropriate Require- ments for the Lindsay Light II Site w/Attachment (Action Criteria for Superfund Removal Actions at the Kerr-McGee Resi- dential Areas Site, West Chicago, IL)	21
4	06/13/96	Morin, C., Illinois EPA	Simon, V., U.S. EPA	Letter re: Response to June 2 Letter Regarding ARARs for the Lindsay Light II Site w/Attach- ment (List of State and Federal ARARs and TCBs re: Inclusion of ARARs in the Administrative Record)	9

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
<u>UPDATE #5</u> SEPTEMBER 22, 1999					
1	02/12/98	U.S. EPA/ OERR	U.S. EPA	OERR Directive No. 9200.4-25	5
2	00/00/00	Simon, V. & F. Micke; U.S. EPA	Muno, W., U.S. EPA	Action Memorandum Amend- ment: Determination that Specific Institutional Controls are Adequate to Abate the Threat to Public Health and the Environment from the Thorium Under the Rights-Of-Way Adjacent to the Lindsay Light II Site (PENDING)	

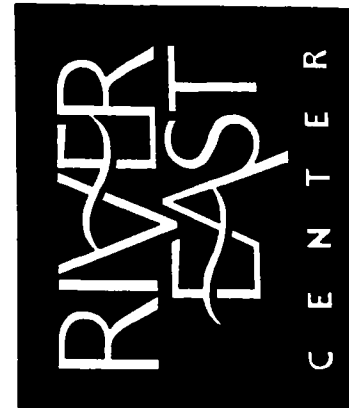
GEND

pCi/gm

LOCATION OF THORIUM IMPACTED SOIL AND
MEASURED TOTAL RADIUM CONCENTRATION

PORTION OF THE 5.17 FOOT STRIP OF LAND DEPICTED AS THE AREA
TO BE VACATED" ON THE DRAWING ATTACHED TO THE CITY OF CHICAGO
ORDINANCE ENACTED SEPTEMBER 1, 1999 AND NO PORTION OF THE ENC-
ROACHMENTS APPROVED BY THE CITY OF CHICAGO ENACTED OCTOBER 7,
1998 AND NO PORTION OF THE SITE LIES WITHIN THE AREA DESIGNATED
HEREON AS "IMPACTED RIGHTS-OF-WAY"

RIGHT-OF-WAY DIMENSIONS FROM 21st EDITION ATLAS OF COOK COUNTY,
ILLINOIS, VOLUME 9, TH SIDWELL COMPANY, 1998



CASE FOUNDATION COMPANY

A KELLER COMPANY
Caissons • Piling • Slurry Wall/Trenches
P.O. Box 40 1325 West Lake St. Roseville, IL 60172 630-520-2011

STS PROJECT NUMBER

24418-RR

STS PROJECT FILE

G1plan2.dwg

SCALE

AS SHOWN

SHEET NUMBER

ENFORCEMENT CONFIDENTIAL ADDENDUM
LINDSAY LIGHT II SITE
CHICAGO, COOK COUNTY, ILLINOIS
SEPTEMBER 1999

ENFORCEMENT CONFIDENTIAL

This addendum updates the Enforcement Confidential Addendum dated April 1996.

In June 1996 U.S. EPA issued a unilateral Administrative Order to Kerr-McGee Corporation (now known as Kerr-McGee L.L.C.) and Chicago Dock and Canal Trust (now known as River East L.L.C.) to remove contamination to a cleanup level of 5 picocuries per gram total radium (radium-226 + radium-228) over background at this site. The UAO also required off-site surveying and sampling as necessary as at a minimum implementation of the standards of 40 C.F.R. 192, if deemed necessary. The PRPs complied with the UAO. The site owner, River East L.L.C. is currently redeveloping the Site for condominiums, a hotel, theaters, restaurants, and other commercial uses. The removal action and the redevelopment of the Site will result in the removal of all elevated levels of radioactive material from within the Site's legal description.

During the cleanup at the Site, radiation surveillance located elevated levels of radiation present in the soils under the sidewalks and streets adjacent to the Site, i.e. adjacent to the legal description of the property located at 316 East Illinois Street. This radioactive material appeared to have been backfill from the Site that was placed around various utilities, e.g. electrical and water. The shielding effects of the asphalt, concrete, and overburden prevents the release of the radiation to humans or the environment. The radioactive material is not water soluble. As long as the asphalt, concrete and overburden is in place the threat to human health and the environment is contained. Nonetheless, the radioactive materials may be exposed and released if the shielding materials are disturbed or if a person tunneled into or otherwise came into contact with the radioactive materials.

Kerr-McGee L.L.C. and River East L.L.C. are planning to enter into a Right-of-Way Agreement with the City of Chicago that would restrict access to the contaminated areas and, if access was needed, a health and safety plan would be implemented that would provide for the proper protection of potentially exposed workers and the proper management of any disturbed or exposed radioactive materials. The Agreement also provides that the City of Chicago must give all utilities notice of the contamination and must maintain a database that will notify any person seeking a permit for access to the rights-of-way of the presence of the

contamination and their obligation to implement the health and safety plan. The City will send U.S. EPA will copies of all permit requests. The City will record the Agreement with the Cook County Recorder of Deeds on the rights-of-ways and it will run with the land. If U.S. EPA does not approve the Agreement it will become null and void.

U.S. EPA has not yet issued a completion letter to the PRPs, however, it is believed that the present removal action will eliminate all elevated contamination from the Site as its legal description appears in the Recorder of Deeds. The Right-of-Way Agreement is the institutional control for the contamination in the rights-of-ways. The executed and recorded Agreement will satisfy the removal requirements for the radioactive contamination in the rights-of-way adjacent to the Site.

Although U.S. EPA and the PRPs conducted off-site radiation surveillance, because of the presence of overburden there will always remain the possibility that undiscovered off-site radioactive contamination beyond the rights-of-ways is present. This Action Memorandum Amendment addresses only the off-site contamination located in the rights-of-ways adjacent to the Site.

On January 20, 1999 U.S. EPA issued a demand letter to Kerr-McGee and River East for its costs related to the Lindsay Light II Site from 1981 through March 13, 1996 which were estimated at \$30,457.15. U.S. EPA incurred the costs in its oversight of an AOC entered into with Chicago Canal Dock and Trust for investigatory work at the Site. The PRPs paid the demand in full within 30 days. Once the present removal action is completed another demand letter will be issued to Kerr-McGee and River East or their predecessor corporations for costs incurred in the oversight of the UAO.